



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Kathleen Clarke  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

April 29, 2002

TO: Internal File

THRU: Karl R. Housekeeper, Reclamation Specialist, Team Lead *KRH/ryan*

FROM: James D. Smith, Sr. Reclamation Specialist/Hydrology *JDS*

RE: Permit Area Reduction - IBC, Energy West Mining Inc., Deer Creek Mine, C/015/018-02B

## SUMMARY:

Leases on five areas, totaling 1,885.52 acres, have been relinquished by PacifiCorp since December 1995. In this submittal, received by the Division on March 4, 2002, PacifiCorp proposes an amendment to the MRP that removes these areas from the Deer Creek Mine permit.

Leases ML-22509 and U-7653 were undermined by the Deer Creek Mine from 1996 through January 1999, and a large section of the surface in U-7653 has subsided up to 6 feet. The 320-acre fee area owned by the LDS Church on the east side of the permit area was undermined by both the Deer Creek and Cottonwood/Wilberg Mines and the surface has subsided up to 14 feet in the center. The parts of U-24319, U-47979, and SL-064607-064621 that have been relinquished were not undermined by either mine.

## TECHNICAL ANALYSIS:

## ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

## HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

TECHNICAL MEMO

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**Analysis:**

Maps in the MRP show springs 89-62, 89-63, 89-64, 89-65, and 89-70 plus two springs without names in leases ML-22509 and U-7653.

Of the springs in the relinquished leases, only 89-65 has been monitored: at high-flow in July and low flow in October since 1989. The Division has compared the flow data against the Palmer Hydrologic Drought Index (PHDI) for Regions 4 and 7 and the precipitation data from PacifiCorp's weather station on East Mountain. Variations in high-flow at spring 89-65 correspond roughly with variations in the PHDI and precipitation data, but low-flows show poor correspondence. A period of minimal low-flows from 1992 through 1995 occurred during a time when both the PHDI and precipitation were generally high; however, it is notable that when both the PHDI and precipitation dropped in 1994 in the middle of this wet cycle, high-flow and low-flow both fell to zero – no measurable flow. The areas near this spring were undermined by the Deer Creek Mine operations from 1996 through 1999, so the 1992 to 1995 period of reduced low-flows does not appear related to mining activity. PacifiCorp also plots the flow of springs and precipitation on East Mountain and has found a strong correlation of spring discharge volumes and the amount of precipitation; these charts are included in the Annual Reports.

Spring 89-64 is the only spring in the relinquished areas that has been subsided. It is located in U-7653 where the surface subsided 2 to 4 feet, on the west edge of the subsided area. Because this spring was not monitored, it cannot be determined whether or not subsidence had any impact on it.

The following explanation of the process that was used to select springs for monitoring was provided by Chuck Semborski of Energy West in an e-mail dated Friday, April 26, 2002:

“Between the time PacifiCorp began monitoring springs on East Mountain and 1986 the number of springs measured increased from less than fifty (50) to nearly eighty (80). PacifiCorp believed that more benefit could be realized by concentrating its monitoring to selective springs in the areas that will be undermined within the next five years. (See Map HM-5 in pocket. [of MRP]) A meeting was held on March 25, 1987 with the U. S. Forest Service and the Utah State Division of Oil, Gas and Mining to determine the most effective plan for PacifiCorp's monitoring. A subsequent meeting was held on April 15, 1987 with the State Division of Oil, Gas and Mining to finalize the monitoring plan revisions. In addition to major revisions made in 1987, each year a meeting is held with State and Federal agencies to adjust the monitoring schedule based on field investigations.”

“During the meetings it was resolved that the following springs will be monitored. Eight additional springs (denoted with a plus [+] symbol below) were added in 1989 after the annual field verification process jointly conducted by DOGM and PacifiCorp.”

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*Burnt Tree Springs	79-40
*Elk Spring	80-41
*Sheba Springs	80-43
Ted's Tub	*80-44
79-2	*80-46
*79-10	80-47
79-15	+80-48
*79-23	80-50
79-24	82-51
*79-26	*82-52
+79-28	*84-56
*79-29	+89-60 (Alpine Spring)
79-32	+89-61
79-34	+89-65
*79-35	+89-66
79-38	+89-67
	+89-68

This list is basically the same as the list now found in the monitoring plan of the current MRP.

Overall, data collected by PacifiCorp from 1989-2001 indicate a direct relationship between ground-water discharge and precipitation. Hydrologic monitoring on East Mountain has not revealed any change in the quantity or quality of groundwater that can be attributed to mining on East Mountain. Considering the data compiled by PacifiCorp for the area, and as best as can be determined from the limited data in the relinquished areas and considering the absence of complaints from water users, it appears that mining has caused little or no impact to ground- and surface-water resources and the hydrologic balance in and adjacent to the areas being removed from the permit.

Monitoring of spring 89-65 will continue under the operational monitoring plan in the MRP. The relinquished leases will be in the adjacent area and will still be subject to the Coal Mining Rules to the extent the rules apply to adjacent areas.

**Findings:**

Hydrologic resource information is sufficient to meet the requirements of this section of the Coal Mining Rules.

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# RECLAMATION PLAN

## HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

### Analysis:

#### General

Leases ML-22509 and U-7653 were undermined by the Deer Creek Mine from 1996 through January, and a large section of the surface in U-7653 has subsided up to 6 feet. The 320-acre fee area owned by the LDS Church on the east side was undermined by both the Deer Creek and Cottonwood/Wilberg Mines and has subsided up to 14 feet in the center. The parts of U-24319, U-47979, and SL-064607-064621 that have been relinquished were not undermined by either mine.

#### Ground-water monitoring

Maps in the MRP show springs 89-62, 89-63, 89-64, 89-65, and 89-70 plus two springs without names in leases ML-22509 and U-7653. Only spring 89-65 has been subsided. It is located in lease U-7653 where the surface dropped 2 to 4 feet, on the west edge of the subsided area. Because this spring was not monitored, it cannot be determined whether or not subsidence had any impact on it.

Overall, data collected by PacifiCorp from 1989-2001 indicate a direct relationship between ground-water discharge and precipitation. Hydrologic monitoring on East Mountain has not revealed any change in the quantity or quality of groundwater that can be attributed to mining on East Mountain. Considering the data compiled by PacifiCorp for the area, and as best as can be determined from the limited data in the relinquished areas and considering the absence of complaints from water users, it appears that mining has caused little or no impact to ground- and surface-water resources and the hydrologic balance in and adjacent to the areas being removed from the permit.

Monitoring of spring 89-65 will continue under the operational monitoring plan in the MRP. This monitoring will continue through bond release unless the plan is modified with the Division's approval. The relinquished leases will be in the adjacent area and will still be subject to the Coal Mining Rules to the extent the rules apply to adjacent areas.

**Findings:**

Hydrologic reclamation information is adequate to meet the requirements of the Coal Mining Rules.

**RECOMMENDATIONS:**

This amendment should be approved.

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